



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/479,304	01/06/2000	GEOFFREY B. RHOADS	60085	2884
23735	7590	08/08/2006	EXAMINER PICH, PONNOREAY	
DIGIMARC CORPORATION 9405 SW GEMINI DRIVE BEAVERTON, OR 97008			ART UNIT 2135	PAPER NUMBER

DATE MAILED: 08/08/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/479,304

Applicant(s)

RHOADS, GEOFFREY B.

Examiner

Ponnoreay Pich

Art Unit

2135

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 24 May 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-10 and 16-25 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-10 and 16-25 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 5/26/2006 has been entered.

Claims 1-10 and 16-25 are pending. Claims 11-15 were cancelled. Claims 16-25 were newly added. Any well known art statements in the prior office actions that were not specifically or adequately traversed by applicant are taken as admittance of prior art as per MPEP 2144.03.

Information Disclosure Statement

The documents listed in applicant's IDS submitted on 5/24/2006 have been considered.

Observations with Regards to Apparatus Claims

Note that claims directed to apparatus must be distinguished from the prior art in terms of structure rather than function. In re Danley, 120 USPQ 528, 531 (CCPA 1959). "Apparatus claims cover what a device is, not what a device does." (Emphasis in original) Hewlett – Packard Co. v. Bausch & Lomb Inc., 15 USPQ2d 1525, 1528 (Fed. Cir. 1990). A claim containing a "recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus" if the prior art apparatus teaches all the structural

limitations of the claim. Ex parte Masham, 2 USPQ2d 1647 (Bd. Pat. App. & Inter. 1987).

Expressions relating the apparatus to contents thereof during an intended operation are of no significance in determining patentability of the apparatus claim." Ex parte Thibault, 164 USPQ 666, 667 (Bd. App. 1969). Furthermore, "[i]nclusion of material or article worked upon by a structure being claimed does not impart patentability to the claims." In re Young, 75 F.2d, 25 USPQ 69 (CCPA 1935) (as restated in In re Otto, 312 F.2d 937, 136 USPQ 458, 459 (CCPA 1963)). "The manner or method in which such machine is to be utilized is not germane to the issue of patentability of the machine itself". In re Casey, 370 F.2d 576, 152 USPQ 235 (CCPA 1967).

Response to Arguments

Applicant's arguments have been fully considered, but were not persuasive for the reasons given below. Applicant traverses the rejections of claims 1-10 for the reasons set forth in the Pre-Appeal Brief Request for Review. The following discussion is with regards to what applicant argues in the Pre-Appeal Brief Request.

Applicant argues the combination of Ariyavisitakul, herein Ari, and Hembrooke in the rejection of claims 1-10 stating that there is no noted problem in Ari for which Hembrooke provides a solution. In response, the examiner notes that there is no requirement that an express written motivation to combine must appear in a reference, see Riuz v. A.B. Chance Co. 37 F.3d 1270, 1276, 69 USPQ2d at 1690. The motivation

to combine prior art references may also exist in the nature of the problem to be solved or the knowledge of one of ordinary skill in the art. As applicant acknowledges, cell phone fraud is a widely recognized problem, i.e. cell phone fraud was a problem known to one of ordinary skill in the art for which solutions are desired. Applicant argues that many previous patents offers solutions to this problem, thus one skilled would turn to one of the solutions previously offered rather than turn to Hembrooke to modify Ari. The examiner respectfully disagrees. The fact that there are many previous solutions to solving the problem of cell phone fraud shows that one of ordinary skill would not stop at just using a previously discovered solution to combat cell phone fraud. If that were the case, then after one solution was discovered, then there would have only been one solution found and every other person of ordinary skill following would use this previously discovered solution. Further, due to the nature of the patent system, because one solution has been found and patented, it encourages other inventors to seek a different solution to the same problem since the first person who comes up with a solution to a problem (and patented that solution) then has the right to exclude everyone else from using the same solution or force them to pay to use the solution found.

Applicant argues that the examiner in making the rejections started from applicant's invention and worked backwards instead of making the required inquiry of what an artisan would do starting from the prior art. The examiner respectfully notes that it must be recognized that any judgment on obviousness is in a sense necessarily a reconstruction based upon hindsight reasoning. But so long as it takes into account

only knowledge which was within the level of ordinary skill at the time the claimed invention was made, and does not include knowledge gleaned only from the applicant's disclosure, such a reconstruction is proper. See *In re McLaughlin*, 443 F.2d 1392, 170 USPQ 209 (CCPA 1971).

Applicant argues that the examiner's justification to combine Ari and Hembrooke because they both belong to the field of signal processing is too severe. The examiner notes that the examiner never stated that this was the reason/motivation to combine the two teachings. The examiner only stated that they were analogous arts because they both belonged to the field of signal processing. Further, it is noted that prior art are analogous if the reference is in the field of applicant's endeavor or is reasonably pertinent to the particular problem with which the inventor was concerned.

As per claim 3, applicant argues the examiner never addressed the limitation "wherein substantially all of the data transmitted by the cell phone is steganographically encoded". The examiner respectfully disagrees. The limitation was addressed in the prior office action. Applicant disagreeing with the rejection does not mean that it was not addressed. Note further, that upon further review of the MPEP (2114), further rejections/objections are made below with regards to this and other limitations being claimed. Applicant's arguments to claims 7 and 8 are also moot because of new objections/rejections brought about due to a further review of MPEP 2114. Note that the examiner does not admit to agreeing with any arguments by applicant with regards to these claims. These new objections/rejections are made because the examiner believes that they are more appropriate in light of what is disclosed by the MPEP.

Claim Objections

Claims 21 and 23 are objected to because of the following informalities: In claims 21 and 23, applicant refers to "said host data" and "the host data". The examiner respectfully suggests consistent usage of "said" and "the" in referring to the same item. Inconsistent usage appears to imply that what is being referred to by "said" and "the" are two different items. The same suggestion applies to other claims also in referring to other items. Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-3, 7-8, and 16-25 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

1. It is noted that claim 1 is directed towards a cell phone, thus claim 1 is an apparatus claim. As noted above, the patentability of an apparatus depends on its structure rather than what it does or any materials worked on by the apparatus. As per claims 3 and 7-8, the limitations recited therein appear to either describe what the apparatus does or a material worked on by the apparatus. It is unclear how the limitations further recited in claims 3 and 7-8 further define the structure of the cell phone of claim 1. As per MPEP 2114, the

examiner will not give patentable weight to these limitations since they do not appear to define the structure of the cell phone or any component of the cell phone.

2. Claim 16 is also a claim to a cell phone, thus is an apparatus claim. Limitations further recited in claims 17-19 appear to describe what the apparatus does and materials worked on by the apparatus. As such, it is unclear how these limitations further define the structure of the apparatus. In applying art, patentable weight will not be given to these limitations as per MPEP 2114.
3. Claim 21 is also claim to a cell phone, thus is an apparatus claim. Limitations further recited in claims 22 and 23 appear to describe what the apparatus does. As such, it is unclear how these limitations further define the structure of the apparatus. In applying art, patentable weight will not be given to these limitations as per MPEP 2114.
4. The term "substantially " in claim 3 is a relative term which renders the claim indefinite. The term "substantially " is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention. It is unclear how much data is encompassed by "substantially all" as recited in the claim.
5. Claims 1, 16, 20, 21, and 24 recites "its transmission". It is unclear what is being referred to by "its". The examiner respectfully suggests avoiding the use of

pronouns in claims. Other usage of pronoun in claims are also rejected for indefiniteness, i.e. see claim 23, which recites "its hiding".

6. Claim 16 recites "the hidden code", which lacks antecedent basis. The examiner assumes applicant meant "the hidden plural-bit auxiliary code".
7. Claim 18 recites "the auxiliary code", which lacks antecedent basis. The examiner assumes applicant meant "the hidden plural-bit auxiliary code".
8. Claim 18 recites "the encoded code", which lacks antecedent basis. The examiner assumes applicant meant "the encoded hidden code".
9. Claim 25 recites "said encoding" which lacks antecedent basis. The examiner assumes applicant may have meant "said steganographically encoding".
10. Any claims not specifically addressed are rejected by virtue of dependency.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Note that although specific sections of the art used in the rejections are cited below, applicant should fully consider the cited art in their entirety with regards to the patentability of the claims as other sections not cited could also be pertinent.

Claims 1-10 and 16-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ariyavisitakul et al (US 5,084,891), herein Ari, in view of Hembrooke (US 3,004,104) or Hopper et al (US 3,406,344).

Claims 1-10 and 16-25 are also alternatively rejected under 35 U.S.C. 103(a) as being unpatentable over Reeds, III et al (US 5,204,902) in view of Hembrooke (US 3,004,104) or Hopper et al (US 3,406,344).

Claim 1:

Ari discloses a cell phone (Fig 8 and col 14, lines 14-17) including a data capture system (col 25, lines 55-60 and Fig 8, item 360) and a radiant-energy digital data transmission system (Fig 8, item 399 and col 27, lines 30-46). Note that TDMA cell phones as disclosed by Ari uses radiant-energy digital transmission systems. Ari further discloses the cell phone further includes an encoder (Fig 8, item 870).

Ari does not disclose the encoder being a steganographic encoder. However, Hembrooke teaches that at the time applicant's invention was made, it was well known to alter a signal slightly so that the change is perceptible to a human listener, wherein the alteration of the signal is for the purpose of identifying the origin of the signal (col 1, lines 10-13 and 29-59). This reads on the use of a steganographic encoder. Note that Hembrooke discloses his teachings are applicable to any kind of signal (col 1, lines 34-38).

As admitted by applicant and disclosed in various prior art submitted by applicant, it was well known by one of ordinary skill in the art that cell phone fraud is a major problem facing the industry. At the time applicant's invention was made, it would

have been obvious to one skilled in the art to incorporate Hembrooke's teachings within Ari's cell phone such that the encoder was a steganographic encoder. One skilled would have been motivated to do so because Hembrooke's teachings would allow for the identification of a signal's origin (col 2, lines 68-70), which would be useful in combating cell phone fraud.

Note that a data capture system, a radiant-energy digital data transmission system, and a steganographic encoder are the only things recited in claim 1 which defines the structure of the claimed cell phone apparatus. That the steganographic encoder "hides a plural-bit auxiliary code within the data captured by the data capture system prior to its transmission by the data transmission system" defines what a structure of the apparatus does and as per MPEP 2114, is immaterial to the patentability of an apparatus claim. Further, Hembrooke discloses hiding a plural-bit auxiliary code within data (col 2, lines 35-38). One skilled should appreciate that in incorporating the teaching of a steganographic encoder in Ari's system that the hiding would have to be done prior to transmission by the data transmission system since an encoder cannot encode signals that have already been transmitted.

As an alternative to Hembrooke, Hopper also discloses a steganographic encoder that hides a plural-bit auxiliary code within data captured by the data capture system prior to its transmission by the data transmission system (col 1, lines 57-65 and col 5, lines 3-30). At the time applicant's invention was made, it would have also been obvious to one of ordinary skill in the art to combine the teachings of Ari and Hopper according to the limitations recited in claim 1. One skilled would have been motivated to

do so because Hopper discloses that his teachings would allow identification of the source of phone calls (col 1, lines 46-53). Note that identification of the source of a phone call is useful in combating phone fraud and other phone related crimes.

The following alternative rejection of claim 1 is also presented:

Reeds discloses a cell phone including a data capture system and a radiant-energy digital data transmission system (col 4, lines 5-9; col 11, lines 16-27; and Fig 11). One skilled should appreciate that all cell phones have a data capture system, i.e. microphone for a user to speak into. Reeds further discloses the cell phone includes an encoder (Fig 11, item 230).

Reeds does not disclose the encoder is a steganographic encoder that hides a plurality-bit auxiliary code within data captured by the data capture system prior to its transmission by the data transmission system. However, as discussed above, this limitation was disclosed by both Hembrooke and Hopper.

At the time applicant's invention was made, it would have been obvious to one skilled in the art to modify Reeds invention according to the limitations recited in claim 1 in light of either Hembrooke or Hopper's teachings. One skilled would have been motivated to incorporate either Hembrooke or Hopper's teachings for the same reasons one would have been motivated to incorporate their teachings within Ari's system. Note further that Reeds discloses that cell phone piracy is a problem in the art and piracy succeeds because the service provider has no mechanism to independently authenticate the caller's identity (col 1, lines 19-39). Both Hembrooke and Hopper's

teachings would allow a service provider to authenticate a caller's identity, thus combating piracy.

Claim 2:

Ari further discloses the data capture system captures audio and includes a microphone (col 25, lines 55-60; col 27, lines 33-37; and Fig 8, item 855).

One skilled should further appreciate that all cell phones has a data capture system that captures audio and includes a microphone, even if Ari did not explicitly teach this. A microphone is present in all cell phones to capture the speaker's voice.

Claim 3:

As per the limitation further recited in claim 3, the limitation describes what the apparatus does. As per MPEP 2114 (and further discussed above), because the patentability of an apparatus does not depend on what it does, but rather on its structure, the limitation is not given patentable weight. Claim 3 is rejected for the same reasons given in claim 1.

Claim 7:

As per the limitation further recited in claim 7, the limitation describes what the apparatus does. As per MPEP 2114 (and further discussed above), because the patentability of an apparatus does not depend on what it does, but rather on its structure, the limitation is not given patentable weight. Claim 7 is rejected for the same reasons given in claim 1.

Claim 8:

As per the limitation further recited in claim 8, the limitation describes a material worked on by the apparatus (said overlay signal). As per MPEP 2114 (and further discussed above), because the patentability of an apparatus does not depend on the material worked on by the apparatus, but rather on its structure, the limitation is not given patentable weight. Claim 8 is rejected for the same reasons given in claim 1.

Claim 4:

Ari discloses:

1. Receiving input information (col 27, lines 30-46).
2. Encoding the input information (col 27, lines 30-46 and Fig 8, item 870).
3. Transmitting the encoded information by wireless in a digital format (col 27, lines 30-46 and Fig 8, items 890 and 898). Note that Ari's cell phone uses TDM/TDMA format, which means the cell phone transmits wirelessly using a digital format.

Ari does not disclose steganographic encoding to hide a plural-bit auxiliary code therein. However, as discussed in claim 1, both Hembrooke and Hopper disclose steganographic encoding to hide a plural-bit code therein. At the time applicant's invention was made, it would have been obvious to one skilled in the art to incorporate either Hembrooke or Hopper's teachings within Ari's according to the limitations recited in claim 4. One skilled would have been motivated to do so for the same reasons given in claim 1. Note that in combining Ari's teachings with either Hembrooke or Hooper's, the transmitted information would be steganographically-encoded.

The following alternative rejection is also presented:

Reeds discloses receiving input information; encoding the input information; and transmitting the encoded information by wireless in a digital format (col 9, lines 28-44 and col 11, lines 16-35).

Reeds does not disclose steganographic encoding to hide a plural-bit auxiliary code therein. However, as discussed in claim 1, both Hembrooke and Hopper disclose steganographic encoding to hide a plural-bit code therein. At the time applicant's invention was made, it would have been obvious to one skilled in the art to incorporate either Hembrooke or Hopper's teachings within Reeds's according to the limitations recited in claim 4. One skilled would have been motivated to do so for the same reasons given in claim 1. Note that in combining Reeds's teachings with either Hembrooke or Hooper's, the transmitted information would be steganographically-encoded.

Claim 5:

As per claim 5, both Ari and Reeds further discloses the limitations recited therein:

1. Receiving the input information in a non-digital form (Ari: col 27, lines 30-46)
(Reeds: col 9, lines 28-44).
2. Expressing the received information in digital form (Ari: col 27, lines 30-46 and Fig 8, items 865 and 870) (Reeds: col 9, lines 28-44).

3. Encoding the digital form of the input information (Ari: col 27, lines 30-46 and Fig 8, item 870) (Reeds: col 9, lines 28-44).

Claim 6:

Ari further discloses the input information is audio information (col 27, lines 30-46). This is also disclosed by Reeds (col 9, lines 28-44). Incoming speech as disclosed by Reeds is audio information.

Claim 9:

As per the limitation "wherein said steganographic encoding includes additively combining an overlay signal with said input information", it is disclosed by Hembrooke (col 1, lines 14-16 and col 2, lines 31-39). Impressing upon a signal, a characteristic code, reads on additively combining an overlay signal with said input information.

Hopper also discloses the limitation further recited in claim 9 (col 3, lines 44-69).

Claim 10:

As per claim 10, the examiner notes that the prior office action stated that the characteristic code disclosed by Hembrooke was the plural-bit auxiliary code and that it was well known in the art to encode an entire signal rather than just a portion of the signal. Further, in the context of Ari and Hembrooke's combination invention, it would have been obvious to one of ordinary skill to impress the characteristic code upon the entire signal representing the data captured by the data capture system. To get the characteristic code to be as long as the data captured, the characteristic code would have to be repeated as long as the data captured, yielding an overlay signal, i.e. the overlay signal is dependent both on said plural-bit auxiliary code and on said input

information (data captured). As per MPEP 2144.03, the well known art statements from the last office action is taken as admittance of prior art as applicant did not specifically and adequately traverse the statement. As such, it would have been obvious to one of ordinary skill in the art to further modify Ari and Hembrooke's combination invention according to the limitation further recited in claim 10 by creating an overlay signal from the characteristics code that was as long as the data captured. One skilled would have been motivated to do so because it is standard practice in the art to make the encoding signal as long as the signal to be encoded.

Further, as per claim 10, the limitation is also rejected because it is disclosed by Hopper (col 2, lines 23-26; col 3, lines 44-61; and col 4, lines 44-58).

Claim 16:

As per claim 16, a cell phone is claimed, which includes a data capture system, a radiant-energy transmission system, and further characterized in that the cell phone further includes a steganographic encoder. These limitations which define the structure of the apparatus of claim 16 are rejected for the same reasons given in claim 1 as the cell phone of claim 1 also comprise a data capture system, a radiant-energy transmission system and a steganographic encoder. The limitation in which the steganographic encoder "hides a plural-bit auxiliary code within data captured by the data capture system prior to its transmission by the data transmission system, said steganographic encoder being responsive - in part - to the data in which the hidden plural-bit auxiliary code is encoded" does not have patentable weight since the limitation defines what the apparatus does rather than the structure of the apparatus.

It should further be noted that in any combination of a cell phone disclosed by Ari/Reeds in view of Hembrooke/Hopper, the cell phone comprising a data capture system, a radiant-energy transmission system and a steganographic encoder, the steganographic encoder must hide the plural-bit auxiliary code within data captured by the data capture system prior to its transmission by the data transmission system since encoders cannot encode data that has already been transmitted. Further, due to the nature of steganographic encoding, where data is encoded so that it is not easily detected by unauthorized parties, the steganographic encoder must be responsive at least in part to the data in which the hidden plural-bit auxiliary code is encoded. If this were not the case, then there is a risk of easily detected steganographic encoding by unauthorized parties.

Claims 17-19:

The limitations further recited in claims 17-19 either define what the cell phone does or a material worked on by the cell phone. Because these limitations do not define the structure of the claimed cell phone apparatus, the limitations do not have patentable weight and claims 17-19 are rejected for the same reasons as given in claim 16.

Further, as per claim 17, Hembrooke also discloses wherein said steganographic encoder represents the plural-bit auxiliary code in a particular manner, depending in part on the data in which the hidden code is encoded (col 1, lines 39-49). Hopper also discloses this limitation (col 4, lines 44-57).

Further, as per claim 18, Hooper also discloses wherein the steganographic encoder controls the amplitude of the encoded hidden code in accordance with features

of the data in which the hidden code is encoded (col 4, lines 40-57). Note that AM is amplitude modulation.

Claim 20:

As per claim 20, a cell phone is claimed, which includes a data capture system, a radiant-energy transmission system, and further characterized in that the cell phone further includes a steganographic encoder. These limitations which define the structure of the apparatus of claim 20 are rejected for the same reasons given in claim 1 as the cell phone of claim 1 also comprise a data capture system, a radiant-energy transmission system and a steganographic encoder. The limitation in which the steganographic encoder "hides a plural-bit auxiliary code within data captured by the data capture system prior to its transmission by the data transmission system, said steganographic encoder introducing a pseudo-random signal to the data in which the hidden code is encoded" does not have patentable weight since the limitation defines what the apparatus does rather than the structure of the apparatus.

It should further be noted that in any combination of a cell phone disclosed by Ari/Reeds in view of Hembrooke/Hopper, the cell phone comprising a data capture system, a radiant-energy transmission system and a steganographic encoder, the steganographic encoder must hide the plural-bit auxiliary code within data captured by the data capture system prior to its transmission by the data transmission system since encoders cannot encode data that has already been transmitted.

Further, use of pseudo-random signals, i.e. keys, for authentication was well known in the art at the time applicant's invention was made as disclosed by Reeds (col

1, lines 50-55). At the time applicant's invention was made, it would have been obvious to one skilled in the art to further modify either Ari or Reeds's cell phone such that the steganographic encoder introduces a pseudo-random signal, i.e. key, to the data in which the hidden code is encoded. One skilled would have been motivated to do so because it would be useful in authenticating the identity of the cell phone user thereby preventing cell phone fraud (Reeds: col 1, lines 46-49).

Claim 21:

As per claim 21, a cell phone is claimed, which includes a data capture system, a radiant-energy transmission system, and further characterized in that the cell phone further includes a steganographic encoder. These limitations which define the structure of the apparatus of claim 21 are rejected for the same reasons given in claim 1 as the cell phone of claim 1 also comprise a data capture system, a radiant-energy transmission system and a steganographic encoder. The limitation in which the steganographic encoder "hides a plural-bit auxiliary code within data captured by the data capture system prior to its transmission by the data transmission system, host data comprising sample values, and said steganographic encoder serving to increase certain of said sample values and decrease others" does not have patentable weight since the limitation defines what the apparatus does and materials worked on by the apparatus rather than the structure of the apparatus.

It should further be noted that in any combination of a cell phone disclosed by Ari/Reeds in view of Hembrooke/Hopper, the cell phone comprising a data capture system, a radiant-energy transmission system and a steganographic encoder, the

steganographic encoder must hide the plural-bit auxiliary code within data captured by the data capture system prior to its transmission by the data transmission system since encoders cannot encode data that has already been transmitted. Further the host data of the cell phones are voice data sampled/captured from the user, thus the host data comprises sample values.

Further Hopper also discloses said steganographic encoder serving to increase certain of said sample values and decrease others (col 3, lines 44-61).

Claim 22:

Claim 22 further recites what the apparatus does. Thus, the limitation further recited in claim 22 is not given patentable weight as per MPEP 2114 and claim 22 is rejected for the same reasons given in claim 21.

Claim 23:

As per claim 23, it too appears to not further define the structure of the claimed apparatus and is not given patentable weight. Further, it should be noted that in steganographic encoding, the encoder must be responsive to the dynamics of the host data in its hiding of the plural-bit auxiliary code within said host data because by definition of steganography, the encoding is done such that the changes to the host data is not perceptible in most cases. This can only be done if the encoding is done responsive to the dynamics of the host data.

Claim 24:

Claim 24 is similar to claim 20 and is rejected for the same reasons. The difference is that claim 20 recites that "said steganographic encoder introducing a

pseudo-random signal to the data in which the hidden code is encoded” while claim 24 recites “said steganographic encoder serving to increase entropy of the host data”. One skilled should appreciate that in introducing a pseudo-random signal to data, i.e. host data, entropy of the host data is increased.

Claim 25:

The first three limitations recited in claim 25 are similar to what is recited in claim 4 and are rejected for the same reasons given in claim 4. Further, Hopper also discloses wherein said steganographic encoding comprises increasing values of certain samples and decreasing the values of other samples, said increasing and decreasing depending, in part, on dynamics of the sampled input information (col 3, lines 44-61). Neither, Ari, Reeds, Hembrooke, or Hopper explicitly disclose the increasing and decreasing are done in a pseudo-random fashion. However, as discussed in claim 20, use of pseudo-random signals, i.e. keys, for authentication was well known in the art at the time applicant’s invention was made as disclosed by Reeds (col 1, lines 50-55). It would have been obvious to one skilled in the art to do the increasing and decreasing in a pseudo-random fashion because it would allow a key to be steganographically encoded into the input information, thus allowing use of a key for authentication, which would further make it more difficult to commit cell phone fraud.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ponnoreay Pich whose telephone number is 571-272-7962. The examiner can normally be reached on 9:00am-4:30pm Mon-Fri.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kim Vu can be reached on 571-272-3859. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

PP

Ponnoreay Pich
Examiner
Art Unit 2135



KIM VU
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2100